MEMBRANE 100% PURE POLYUREA

The 100% pure polyurea TECNOCOAT P-2049 system was developed as a single coating suitable for waterproofing, protection and sealing in general. The pure polyurea TECNOCOAT P-2049 membrane is made up of two high reactive liquid components, isocyanates and amines, which are mixed together using spray equipment. TECNOCAOT P-2049 is an aromatic high density and elasticity pure polyurea and excellent mechanical and chemical resistance qualities.

USES

For waterproofing and protection of:

- Sloped roofs, flat roof (walkables), balconies and overhangs.(according ETA 11/0357)
- Floor surfaces and roofs in car parks (traffic deck)with vehicle traffic, non-slip finish (according ENV 12633:2003)
- Tanks and irrigation canals (according the european directive 98/83/CE)
- Coating for bridges (under asphalt), and elements of civil engineering
- Industrial floor surfaces with waterproofing and hard-wearing requirements (according EN 1504.2 certification)
- Retaining walls and foundations (according EN 1504.2 certification)
- Green roofs and walls (Category P4 under EOTA, highly protected roof, according ETA 11/0357)
- Power plants, recycling, water waste and water treatment and storage plants and petrochemical plants (according EN 1504.2)
- Swimming pools, aquariums, lakes. Near sea water
- Vehicle and boat coatings
- Asbestos roofs.
- As a protection for a polyurethane foam (application over TECNOFOAM G-2050)

Recomended thickness	± 2 mm
Tack free time at 23ºC	± 5 seconds
Working life	W3, 25 years
Tensile stregth at 23ºC	± 23 MPa
Elongation at 23ºC	>300%
Shore A hardness at 23ºC	>90
Application Method	GRACO reactor 2E-XP2
VOC	zero

GENERAL FEATURES

- TECNOCOAT P-2049 is a very surface sturdy, elongation and hard-wearing product that, once applied, offers great stability and durability.
- It had a W3 certification (ETA 11/0357), working life of 25 years with a minimum thickness of 1.4 mm.
- It has a BBA certification (validation on UK market)
- Thanks to its versatility and its drying time around 5 seconds TECNOCOAT P-2049 adapts to any surface, making it the ideal product for application on uneven surfaces and in areas of any shape, whether curved or squared.
- The TECNOCOAT P-2049 system's properties enable it to bond to any surface, such as concrete, ceramic tiles, polyurethane foam, wood, metals, bituminous sheets, acrylic paints
- Furthermore, due to its resistance it can be walked on and it will accept a rough finish to make it non-slip (according ENV 12633:2003)
- Applying TECNOCOAT P-2049 saves in seals and any other kind of joins, as the finish is uniform and makes up a single layer, providing a surface with optimum maintenance and cleaning properties.
- The TECNOCOAT P-2049 pure polyurea membrane system should be applied in dry conditions avoiding the presence of humidity or coming from the surface to be coated or the substrate, whether at the time of application or subsequently (pressure from phreatic water level).
- In the event there is humidity in the substrate at the time of application, consult the technical specifications of our primers where the maximum humidity ranges are specified, or our Technical Application Manual for TECNOCOAT P-2049. (TAM).
- The TECNOCOAT P-2049 system requires solar radiation protection (UV rays) to ensure it does not lose its physical and mechanical properties, given that it is an aromatic membrane. Therefore, our EOTA approved system (ETA 11/0357) incorporates a protective polyurethane colored aliphatic resin, TECNOTOP 2C, for use in the absence of other physical protection elements.
- TECNOCOAT P-2049 is immune to temperature changes of between -40º and +140º, conserving its elastic properties without becoming cracked or soft.
- The fast reaction of TECNOCOAT P-2049 upon application provides great stability in a few seconds and it may be walked on and guarantees waterproofing in less than 3 hours. This polyurea reaches its optimum conditions after approximately 24 hours.
- Contact with fuels, fertilizers, animal excrements or urine do not soften TECNOCOAT P-2049. Please, consult chemical resistance with our technical department.

COLORS

REFERENce	COLOR
P-2049.1	DARK GREY
P-2049.22	BLACK
P-2049.3	GREY
P-2049.9	RED

THICKNESS

Polyurea membrane thickness recomended by Tecnopol Sistema S.L.is 2 mm. Although according to the use of the

element this thickness may increase.(advice our technical department).

PACKAGING

Metal drums of 225 kg each component(amines and isocyanates)

SHELF LIFE

12 months at temperatures between 5° C and 25° C, provided it is stored in a dry place. Once the tin has been opened, the product must be used immediately. Once opening drum, slightly mix mechanically component B (amines), for good mixing of the pigment.

APPLICATION METHOD

In general, the following aspects should be dealt with prior to spraying:

- Repair the surface (fill in depressions, eliminate unevenness, eliminate any old waterproofing, etc.)
- Singular points preparation(perimeter, sinks / evacuations, expansion joints or structural)
- Clean the surface or substrate, removing any dust, dirt, grease or efflorescence.

The TECNOCOAT P-2049 pure poliurea system can be applied to many different surfaces and the procedure will vary depending on its nature or state.

Below we set out some of the application for the most common surfaces; for other surfaces not described, please contact our technical department.

Concrete substrate

- Any depressions or voids should be repaired using a mix (ratio of ±1:4) of our epoxy resin PRIMER EP-1020 mixed with silica sand.
- The concrete should be completely cured (concrete curing takes 28 days) or, in any case, the maximum level of humidity allowed for the substrate should be verified, depending on the primer used.
- Any concrete laitance or release agents should be eliminated and an open pore surface achieved by grit blasting, milling or sanding.
- Next, clean and eliminate all contaminants from the elements, such as dust or particles from the previous processes.
- Apply the primer in the conditions and with the parameters indicated in the technical specifications for these products. In general, the dual component polyurethane PRIMER PU-1050 should be used.

Metal substrate

- Metal surfaces should be prepared using sand-blasting, in order to improve the surface's mechanical fixation properties.
- Check the seals and overlaps and where necessary seal with MASTIC PU mastic or TECNOBAND 100, in combination.
- For rapid and efficient cleaning of the surface use a ketene based solvent, our DILUYENTE TEC-4U Thinner.
- Apply prior priming using a water-based epoxy type primer, our PRIMER EPw-1070, to improve surface leveling and bonding. Consult the technical specifications of this product.
- Apply the TECNOCOAT P-2049 pure polyurea membrane.

Ceramic substrate

- Ceramic surfaces should not have empty joints or loose elements or parts. These should be filled with MASTIC PU mastic, complemented with TECNOBAND 100 on the joints if necessary.

- For rapid and efficient cleaning of the surface use pressurized water and check that it evaporates completely. Also verify that all dust and other physical contaminants have been eliminated.
- Next apply the required primer; in these cases of non-porous surfaces use the water-based epoxy PRIMER EPw-1070.
- Apply the TECNOCOAT P-2049 pure polyurea membrane.

Sheets: substrate:

The existing sheet surfaces (bitumen, EPDM, PVC ...) must not show surface areas raised or not in good condition. He withdrew in poor areas.

- There shall be cleaned with water, ensuring complete evaporation.
- Next apply the required primer; in these cases of non-porous surfaces use the water-based epoxy PRIMER EPw-1070.
- Apply the TECNOCOAT P-2049 pure polyurea membrane.

Always consult the waiting and drying times and application conditions for all products in the Specification Sheet for each product or in the technical manual for application of the TECNOCOAT P-2049 (TMA) system

APPLICATION REQUIREMENTS (MACHINE GUN)

- Heater isocyanate temperature: ±74-78 ºC
- Heater amines temperature:±65-67ºC
- Hose temperature:± 70-73 ºC
- Pressure: 2.700 ~ 2.900 psi (180 ~ 200 bar)

These temperature and pressure parameters have to be valued, ratified or be varied by the applicator, depending on the conditions of each climate zone, weather situation or as projection equipment specifications.

HANDLING AND TRANSPORT

These safety recommendations for handling, are necessary for the implementation process as well as in the pre-and post, on exposure to the loading machinery.

- Respiratory Protection: When handling or spraying use an air-purifying respirator.
- Skin protection: Use rubber gloves, remove immediately after contamination. Wear clean body-covering. Wash thoroughly with soap and water after work and before eating, drinking or smoking.
- Eye / Face: Wear safety goggles to prevent splashing and exposure to particles in air.
- Waste: Waste generation should be avoided or minimized. Incinerate under controlled conditions in accordance with local laws and national regulations.

Anyway, consult the safety data sheet of the product, are publicly available.

COMPLEMENTARY PRODUCTS

The TECNOCOAT P-2049 system may be complemented with the following products as a means of protection or to improve its physical-mechanical properties depending on its exposure, the desired finish or the type of substrate.

- PRIMER EP-1020: Mixed with silica sand in a ratio of 1:4, this is used to fill in depressions in concrete surfaces,

rapidly providing a firm and fast drying even base.

- PRIMER PU-1050/PRIMER EPw-1070/PRIMER PUc-1050/PRIMER PU-1000: These several resins are applied on the substrate beforehand to improve bonding and level the surface, as well as regulating the humidity in the substrate (see permitted levels in their technical specifications).
- TECNOTOP 2C-: Dual-component colored aliphatic polyurethane resin, used to protect roofs and floors or ground against UV rays when there is no other protection.
- TECNOTOP 2CP: Dual-component colored aliphatic polyurethane resin used to protect against UV rays and chlorinated water when waterproofing swimming pool, lakes and aquariums.
- TECNOPLASTIC F/C: This plastic powder, once mixed with TECNOTOP 2C/2CP, forms a rough surface, conforming even to norm ENV 12633:2003 (floors slipperiness), to achieve Class 3 (>45 slip resistance), depending on dosage (consult our technical department).
- TECNOBAND 100: Cold bond deformable band made up of an upper layer of non-woven textile and lower layer of viscoelastic self-adhesive coating, which together allow it to adapt to the shape of the substrate. This band is ideal when dealing with structural joints and overlapping metal materials.
- MASTIC PU: Polyurethane mastic for filling joints (use together with Tecnoband 100 when necessary).

SYSTEM TECHNICAL DATA (ACCORDING ETA 11/0357 AND BBA)

PROPERTIES	VALUES	RESULTS	METHOD
Density at 23 ºC		1.100 kg/m³	BS 4370 PART 1 METH 2
Elongation at break at 23 ºC		>300%	ISO 527
Tensile Strength at 23 ºC	>17 MPa after 10 days		UNE-EN ISO 527-3
Hardness (Shore A)at 23ºC		>90	DIN 53.505
Hardness (Shore D) at 23ºC		>50	DIN 53.505
Working life	W3 25 years and 1,4 mm of minimum thickness		
Climatic zone	S (hard weather)		
Surface temperatures	-20 ºC~90 ºC		
Resistance to water vapor diffusion	μ	μ=2.279	EN 1931
Water vapor diffusion		14g/(m² / day)	EN ISO 7783
User load	P4 (green roof, heavily loaded)		
Roof slope	S1~S4,zero slope		
External fire behavior	Class. Broof (t4)		EN 13501-5:2007 A1:2010
Fire reaction	Euroclass E		
Resistance to movement	according at 1.000 times		EOTA TR-008
Tack free time at 23 ºC	±5 seconds		
Cured time at 23 ºC	10 seconds~48 hours		
Solids (VOC zero)	100%		
Anti roots certificate	YES		EN 13948:2008
Chemical resistance	Resistant to many products and chemicals (consult technical department)		
Thermal resistance	It behaves consistently with temperature range of: -40 ºC ~ +140 ºC		

TECHNICAL DATA (ACCORDING ETA 11/ 0357)

PROPERTIES	COMPONENT A	COMPONENT B
Specific gravity (g/cm³)	1,11±5%	1,09 ±5%
Dry extract at 105 ºC (% weight) EN 1768	100	100
Ashes at 450 ºC (% weight) EN 1879	?1	?1
Viscosity (cps) (S63, 30 rpm at 25 ºC) UNE-EN ISO 2555	600±50	650±50
Mix ratio – in weight	100	102
Mix ratio – in volume	100	100

TECHNICAL DATA (ACCORDING EN 1504.1)

PROPERTIES	VALues	result	method
Abrasion Resistance	Mass loss	133 mg	EN ISO 5470-1:1999
Mass drop test	No cracks, no flecking, 20Nm mass 1000 g	Class II>10Nm	EN ISO 6272-1-2004
	No cracks no flecking, 20Nm, mass 2000 g	Class II>20Nm	
Resistance to strong chemical contact Shore D initial 53	Class I: 3 days without pressure		EN 13529:2005
	SO4 H2 at 20%	Shore D final 50	
	Oil motors	Shore D final 49	
	Salt 20%	Shore D final 53	
	Bleach	Shore D final 47	
	OH Na 20%	Shore D final 51	
	Diesel	Shore D final 50	
Water liquid permeability	kg/m² h 0,5	w<0,0045: (< 0,1 kg/m² h 0,5)	
Water vapor transmission speed	V=6,67 (g/m² x day)	Class I: Sd<5 m (permeable to vapor)	EN ISO 7783:2012
Equivalent air layer thickness	0,80 Sd (m)		EN ISO 7783:2012
Carbon dioxide permeability	Sd>50 m		EN 1062-6:2003

OTHER CERTIFICATIONS

PROPerties	RESULT	method
Tear strength	48 kN/m (±3)	ISO 34-1:2011
Non migration to potable water	ABLE(check the official document)	European Directive 98/83/CE
Food contact (ethanol 20%)	ABLE (check the official document)	EN 1186-1:2002 EN 1186-3:2002

Finlàndia, 33 · 08520 Les Franqueses del Vallès · Barcelona (Spain)
(+34) 93 568 21 11 · info@tecnopol.es · www.tecnopol.es